

## Two Species of Callyspongiidae (Demospongiae: Haplosclerida) from Korea

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### ABSTRACT

Two marine species of family Callyspongiidae, *Callyspongia mookriensis* n. sp. and *Siphonochalina truncata*, were collected from Chujado Island and Jejudo Island, Korea during 2005-2007. *Callyspongia mookriensis* n. sp. is similar to *Callyspongia flabelliformis* Tanita, 1968 in type of spicule, habitat and growth form but differs in spicule and mesh size. The new species has longer oxea and broader mesh than *Callyspongia flabelliformis*'s. The overall shape and skeleton of *Siphonochalina truncata* are nearly identical with specimens described by Lindgren (1897).

**Key words:** *Callyspongia*, *Siphonochalina*, Callyspongiidae, Korea

### INTRODUCTION

The marine sponge of family Callyspongiidae de Laubenfels, 1936 contains four valid genera, *Arenosclera*, *Dactylia*, *Callyspongia*, *Siphonochalina* and a large number of nominal species with a worldwide (Hooper and Van Soest, 2002). The genus *Callyspongia* is characterized by regular ectosomal tangential reticulations that are primary and secondary (Van Soest, 1980). The choanosome has a well developed spongin fibre skeleton, all primary fibres are regularly reticulate producing rectangular meshes, and skeletal tracts usually dominated by spongin (Hooper, 1994). The genus *Siphonochalina* has a tubular, solid, branching growth form. It is a Callyspongiidae with an ectosomal network with one size of clearly defined mesh, unispicular fibres (Hooper and Van Soest, 2002). Spongin is poorly developed compared to *Callyspongia*, with an irregular choanosomal reticulation (Hooper, 1994).

Nine species of family Callyspongiidae have been reported from Korean waters (Rho and Lee, 1976; Sim, 1981; Rho and Yang, 1983; Sim and Kim, 1988; Sim and Byeon, 1989).

### MATERIALS AND METHODS

The sponges were collected from Chujado Island and Jejudo Island, Korea by hand and SCUBA during 2005-2007.

Specimens were fixed in 95% or 99.9% ethanol. Spicules were observed by light microscope (Carl Zeiss Axioskop II). Identification was done on the basis of external features, shape, structure of skeleton, and size and form of spicules. Thin free-hand sections were made with specimens hardened in alcohol using a surgical blade in order to observe the structure of the skeleton. Spicules were prepared by dissolving a piece of sponge in sodium hypochlorite and were examined with SEM (Rützler, 1978; Hooper, 1996). The holotypes are deposited in the Natural History Museum, Hannam University (HUNHM) Daejeon, Korea and Departments of Biological Sciences, Hannam University, Daejeon, Korea.

### SYSTEMATIC ACCOUNTS

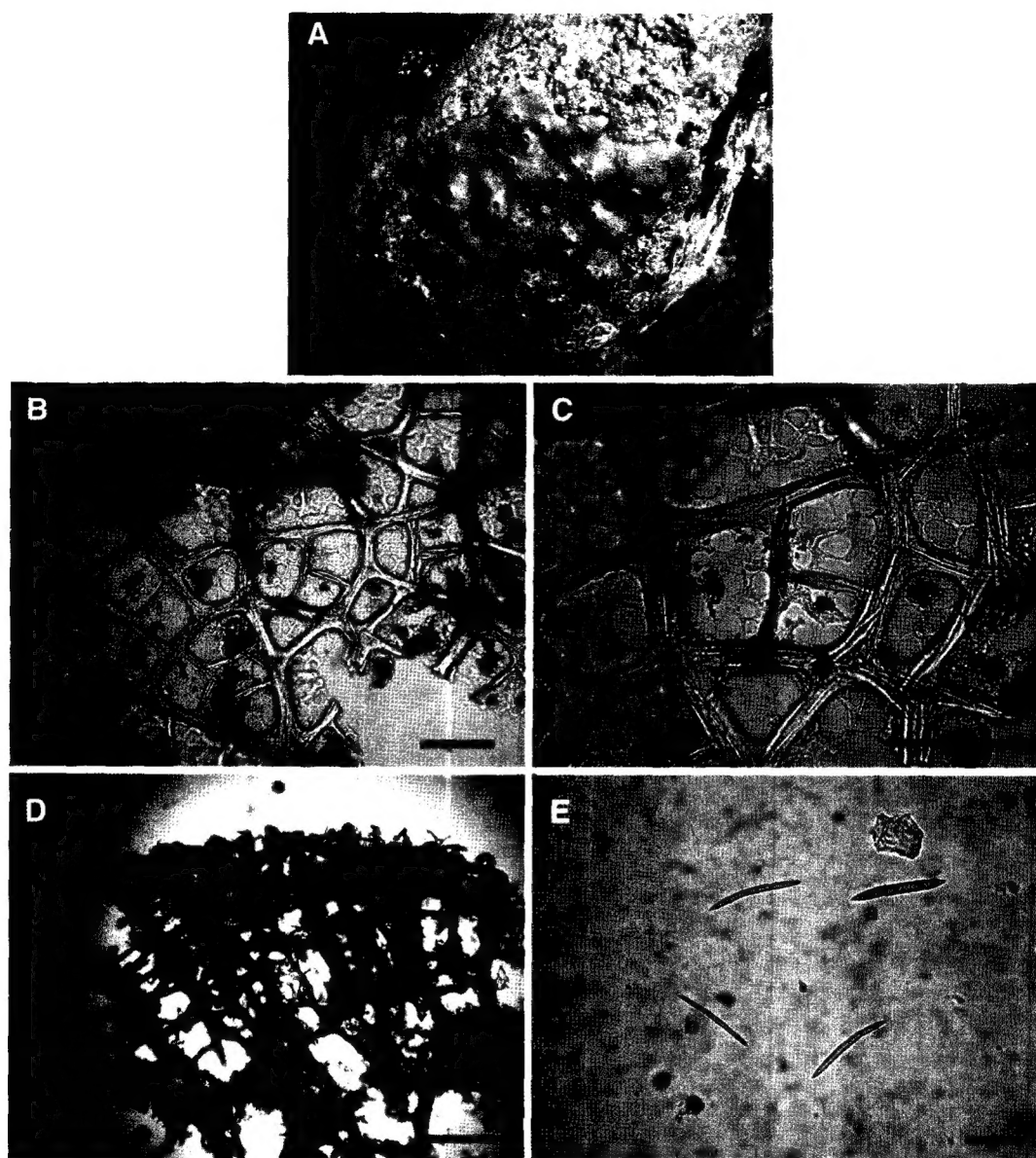
Phylum Porifera Grant, 1836  
Class Demospongiae Sollas, 1885  
Order Haplosclerida Topsent, 1928  
Suborder Haplosclerina Topsent, 1928  
Family Callyspongiidae de Laubenfels, 1936

<sup>1</sup>\**Callyspongia mookriensis* n. sp. (Fig. 1)

*Material examined.* Holotype (Por. 84), Mook-ri, Chujado Island, 24 Feb. 2005 (D.W. Kang), intertidal zone, deposited in HUNHM, Daejeon, Korea.

*Description.* This new species, encrusting on rock, measures up to 7.5 × 3 cm wide, 0.1-0.2 cm thick. Oscule, 0.1-0.3 cm in diameter, open on surface. Color, purple in life which gradually changes to dark ivory in alcohol. Texture,

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**Fig. 1.** *Callyspongia mookriensis* n. sp. A, entire animal; B, C, ectosomal skeleton; D, choanosomal skeleton; E, spicule (a, thick oxea; b, thin oxea). Scale bars=200  $\mu$ m (B, D), 100  $\mu$ m (C), 50  $\mu$ m (E).

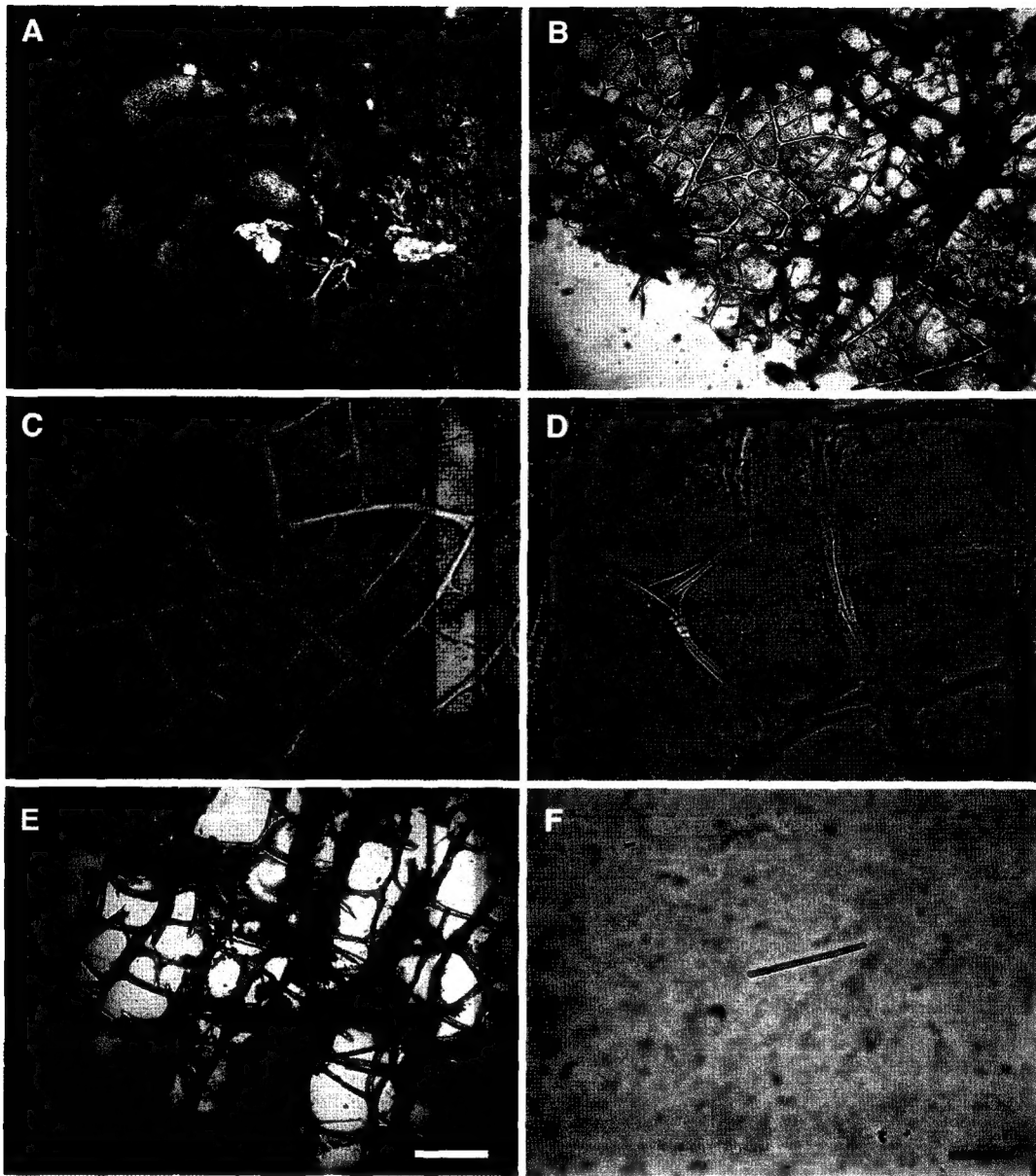
rough and smooth. Ectosomal skeleton: tangential reticulation of spongin fibers forming large (320-650  $\mu$ m in diameter) and small (150-250  $\mu$ m in diameter) meshes; thickness of primary fiber, 60-70  $\mu$ m in diameter and secondary fiber, 15-30  $\mu$ m in diameter. Choanosomal skeleton: Reticulation rectangular, mesh sizes 210-460  $\mu$ m in diameter; thickness of primary fiber, 60-110  $\mu$ m in diameter and secondary fiber 40-50  $\mu$ m in diameter. Spicules, two sizes of oxea, no micro-scleres.

#### Spicules.

Thick oxeas ..... 80-105  $\times$  10  $\mu$ m

**Table 1.** The comparison of characters between *Callyspongia flabelliformis* Tanita, 1968 and *C. mookriensis* n. sp.

Characters	Species	
	<i>Callyspongia flabelliformis</i>	<i>Callyspongia mookriensis</i> n. sp.
Growth form	Encrusting	Encrusting
Oxea ( $\mu$ m)	90-100 $\times$ 3-4	Thick oxeas : 80-105 $\times$ 10 Thin oxeas : 50-70 $\times$ 2-5
Mesh	Rectangular	Rectangular
Ectosomal mesh size ( $\mu$ m)	No description	Larger : 320-650 Smaller : 150-250



**Fig. 2.** *Siphonochalina truncata*. A, entire animal; B-D, ectosomal skeleton; E, choanosomal skeleton; F, spicule (strongyle). Scale bars=200  $\mu$ m (B-D), 100  $\mu$ m (E), 50  $\mu$ m (F).

Thin oxeas ..... 55-70  $\times$  2-5  $\mu$ m

**Etymology.** This species is named after the type locality, Mook-ri, Chujado Island, Korea.

**Remarks.** *Callyspongia mookriensis* n. sp. is similar to *Callyspongia flabelliformis* Tanita, 1968 in type of spicule, habitat and growth form but it differs in size of spicule and mesh diameter. This new species has longer oxea and broader mesh than *Callyspongia flabelliformis* (Table 1).

<sup>1</sup>***Siphonochalina truncata* Lindgren, 1897 (Fig. 2)**

*Siphonochalina truncata* Lindgren, 1897, p. 481.

*Siphonochalina truncata*: Tanita, 1961, p. 132.

**Material examined.** Songaksan, Jejudo Island, 23 Feb. 2005 (K.J. Lee), SCUBA 20 m in depth, Unjin, Jejudo Island, 24. Mar. 2007 (S.U. Moon), SCUBA 20 m in depth, deposited in the Departments of Biological Science, Hannam University, Daejeon, Korea.

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**Description.** Tubular sponge, divided into several tubes at base, erect growth form. Oscule, 0.2-0.5 cm in diameter, open at top of each tube. Color, purple in life which gradually changes to dark ivory in alcohol. Texture, rough. Surface, smooth. Ectosomal skeleton, well-developed reticulation of horny fiber cored by strongyles. Irregular mesh or polygonal mesh, primary fiber, 30-40  $\mu\text{m}$  in diameter, secondary fiber, 15  $\mu\text{m}$  in diameter. Large mesh, 150-420  $\mu\text{m}$  in diameter, small mesh, 60-100  $\mu\text{m}$  in diameter. Chaonosomal skeleton, reticulate rectangular-polygonal mesh, primary fiber 90-100  $\mu\text{m}$  in diameter, secondary fiber 30-40  $\mu\text{m}$  in diameter. Large mesh, 360-600  $\mu\text{m}$  in diameter, small mesh, 410-490  $\mu\text{m}$  in diameter. Spicules, strongyle, no microscleres.

Strongyles ..... 80-110  $\times$  2.5-6  $\mu\text{m}$

**Remarks.** The shape of entire animal and skeleton are nearly identical with specimens described by Lindgren, 1897 (see Tanita, 1961).

**Distribution.** Korea, Japan.

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